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Site Investigation Syosset Landfill Oyster Bay, New York

by

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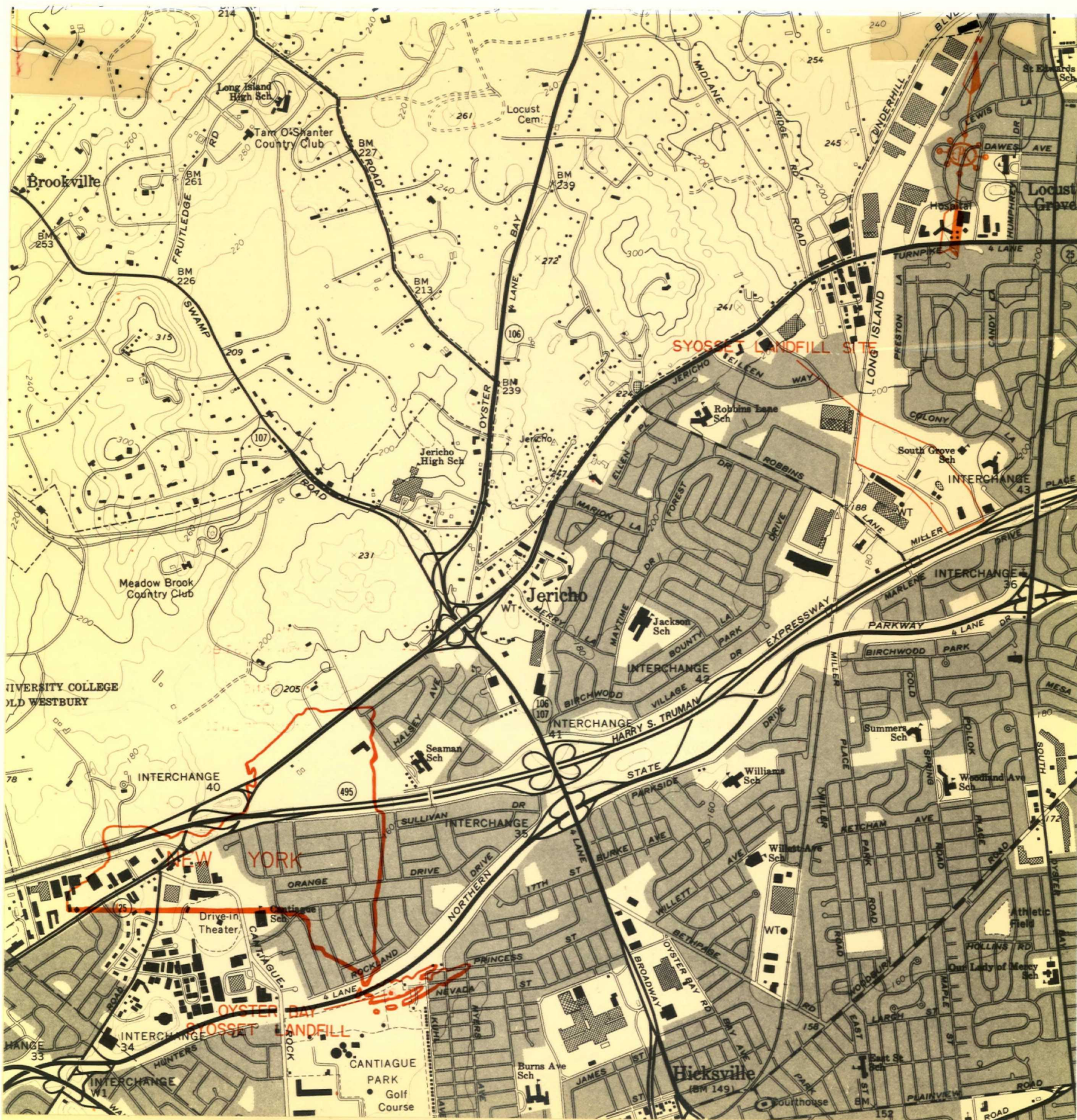


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LOCATION DIAGRAM SYOSSET LANDFILL HICKSVILLE, NY QUAD SCALE 1:24,000

INTRODUCTION

The Syosset Landfill was operated as a municipal landfill from 1936 to 1975 by the town of Oyster Bay, New York. Although the landfill was permitted for municipal wastes only, on-site disposal of chemical wastes has been documented. The landfill was closed soon after chlorinated solvents and metal hydroxide sludges were discovered nearby in the Long Island Aquifer. To assist EPA's ongoing investigation, Region 2's Hazard Assessment Section requested that the Environmental Photographic Interpretation Center (EPIC) conduct an analysis of historical aerial photography of the site.

Black and white aerial photography from 13 separate years and color photography from one year were analyzed in this report. This aerial photography was taken on the following dates: August 3, 1938; December 2, 1953; January 24, 1957; May 4, 1959; March 23, 1962; November 20, 1963; May 5, 1966; April 11, 1969; April 18, 1972; March 14, 1974; April 17, 1976; May 5, 1978; March 6, 1980; and February 1, 1983. Also included in this site analysis is a contour map showing relative heights, prepared for the site as it appeared in 1953. The 1953 photo was chosen for contouring because it showed the excavation at its greatest depth during the period of analysis.

The 16-hectare (40-acre) Syosset Landfill site is located on western Long Island between the towns of Syosset and Hicksville, New York. The landfill is located north of and adjacent to Interstate 495, just west of interchange 43.

Approximately 1,200 homes with basements are located within 2 kilometers (1.25 mile) of the landfill site. The nearest homes are within 30 meters (100 feet). In addition, 12 public schools and a hospital are within the 2 kilometer (1.25 mile) radius of the landfill site. No surface waters are located in the immediate area around the landfill. However, several stormwater recharge basins are located in the vicinity of the site.

An industrial site (possible steel fabrication or metals industry) is located adjacent to and southwest of the Syosset Landfill. This site first appears in the 1953 imagery; waste lagoons, ground staining, and grading and filling activity are evident at this time. These features continue to be present and expand in extent throughout the years of analysis. Although the disturbance on this site is of lesser magnitude than seen on the landfill, further analysis of this site may be necessary to gain a better understanding of the ground water problem in the area.

AERIAL PHOTO SITE ANALYSIS
August 3, 1938 (Photo 1)




The future location of the Syosset Landfill is outlined on the 1938 photograph. On site in 1938 are the following: a building with a possible smokestack, an access road leading to the building, a pit with dark staining and disturbed ground that surrounds the pit. No other features were seen on site in this photograph. The land surrounding the site is primarily agricultural.



SYOSSET LANDFILL AUGUST 3, 1938 APPROX SCALE 1:17,000

LEGEND

I - IMPOUNDMENT
P - PIT
T - TANK
DB - DEBRIS
DM - DARK MATERIAL
DO - DARK OBJECTS
DS - DARK STAINING
LS - LIGHT-TONED STAIN
MM - MOUNDED MATERIAL (MEDIUM-TONED)
MV - MOVING VEHICLE
SV - STATIONARY VEHICLE
SP - SLUDGE PIT

VA - VEHICLE ACCESS POINT
 DTF - DARK-TONED FILL
 LTF - LIGHT-TONED FILL
 MMD - MOUNDED MATERIAL (DARK-TONED)
 MML - MOUNDED MATERIAL (LIGHT-TONED)
 GWRB - GROUNDWATER RECHARGE BASIN
 - BERM, EXCAVATION WALL OR STEEP SLOPE
 - DEPRESSION
 - REVETMENT
 - - - - - ACCESS ROADS
 - - - - - HISTORICAL BOUNDARY
 - - - - - SURFACE RUNOFF

December 2, 1953 (Photo 2)

Considerable activity has occurred on site since 1938. A large active excavation occupies approximately 6 hectares (15 acres) of the northwest portion of the outlined site. The lowest portion of the pit lies approximately 23-28 meters (75-92 feet) below the unexcavated ground that surrounds the site. Dark-toned fill (DTF) (possible sludge) covers approximately 0.4 hectares (1 acre) at the bottom of the excavation. This fill lies approximately 21-24 meters (70-80 feet) below the unexcavated ground surface south of the site. Dark staining (DS) can be seen at two areas on a higher level of the excavation just north of the dark-toned fill. Possible debris (DB) piles are located in the northwest and north central portions of the excavation. Four unlined pits or lagoons have been constructed on top of an area of dark-toned fill (DTF) in the northeastern portion of the excavated area. Possible shallow accumulations of dark liquid occupy the bottom of these pits.

Additional features seen adjacent to the excavation and within the future landfill site are: a raw material handling facility, a new incinerator, and a nursery operation. A possible steel fabrication plant and its associated grounds are located just south of the site.

A rough contour overlay (contour interval = 5 meters), starting at 0 at the bottom of the excavation and increasing to 25 meters at the upper edge of the excavation, is also included. This overlay shows a rough three-dimensional configuration of the excavation in 1953, when it appears at its greatest depth. The following approximate areas, measured from each contour line, represent the area of the extraction pit that is below that contour line. Measures are given in hectares, with the corresponding acreage in parentheses (1 hectare = 2.471 acres).

0-5 m	=	0.4 (1.0)
5-10	=	1.9 (4.7)
10-15	=	2.6 (6.4)
15-20	=	4.7 (11.6)
20-25	=	6.9 (17.0)

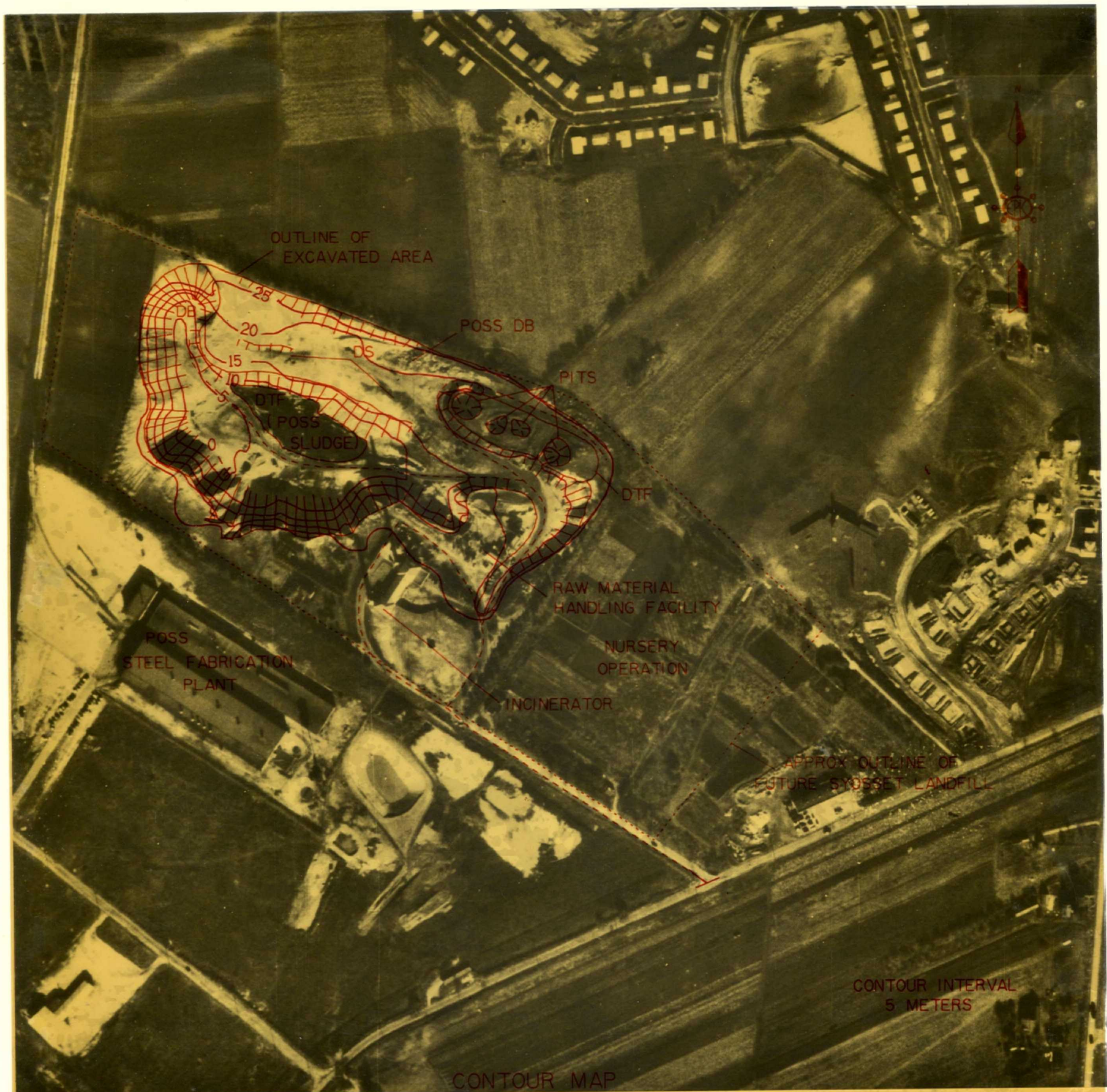


PHOTO 2 SYOSSET LANDFILL DECEMBER 2, 1953 APPROX SCALE 1:4,000

LEGEND

I - IMPOUNDMENT
 P - PIT
 T - TANK
 DB - DEBRIS
 DM - DARK MATERIAL
 DO - DARK OBJECTS
 DS - DARK STAINING
 LS - LIGHT-TONED STAIN
 MM - MOUNDED MATERIAL (MEDIUM-TONED)
 MV - MOVING VEHICLE
 SV - STATIONARY VEHICLE
 SP - SLUDGE PIT

VA - VEHICLE ACCESS POINT
 DTF - DARK-TONED FILL
 LTF - LIGHT-TONED FILL
 MMD - MOUNDED MATERIAL (DARK-TONED)
 MML - MOUNDED MATERIAL (LIGHT-TONED)
 GWRB - GROUNDWATER RECHARGE BASIN
 ===== - BERM, EXCAVATION WALL OR STEEP SLOPE
 (X) - DEPRESSION
 ||||| - REVETMENT
 --- - ACCESS ROADS
 - - - - - HISTORICAL BOUNDARY
 - - - - - SURFACE RUNOFF

January 24, 1957 (Photo 3)

The excavation in the western portion of the site has expanded to the west and south, while filling has occurred in its interior. This extraction/disposal area encompasses approximately 10 hectares (25 acres) and varies in depth from 12-20 meters (40-66 feet). A large pit, lying 15-20 meters (50-66 feet) below the ground surface, contains light- and dark-toned sludge. Drainage patterns indicate that light-toned liquid or sludge has been poured onto the ground and allowed to drain into the pit from the northern and southwestern rims of the pit. Dark liquid has pooled in a rough depression west of the large sludge pit. A small pile of debris (DB), a mound of possible sludge and a stream of light-toned liquid are located just southwest of this dark liquid. In addition, it appears that debris is being buried in a trench near the western wall of the excavation.

North of the sludge pit, dark material (DM) (possibly dry sludge) has been spread out across the fill in a linear pattern. This material lies approximately 12-15 meters (40-50 feet) below the unexcavated area north of the site. North of this dark material several pits have been dug into the north face of the excavation. These pits appear empty.

Two pits containing dark liquid or sludge are located adjacent to the excavation wall near the raw material handling facility. The access roads that lead to the various areas of dumping and filling in the excavation appear darkened, as if they are stained or dark material has been spread out along their length. Mounded material (MM) of varying tones has been dumped on both sides of the southern access road in the southeast portion of the excavation.

The incinerator and raw material handling facility east of the large excavation/disposal area appear active.

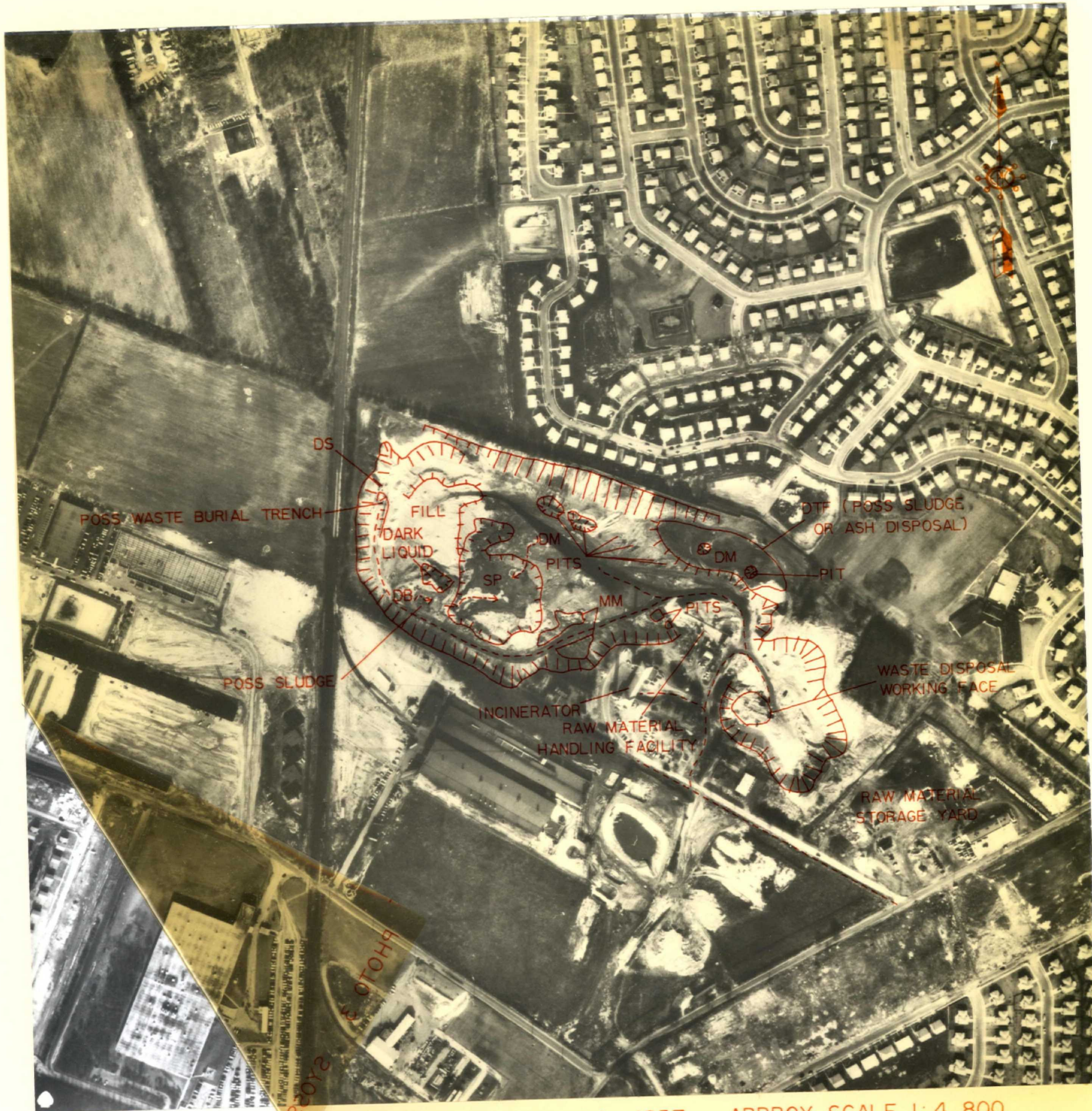
The dark-toned fill (DTF) to the north (area of possible ash or sludge disposal) remains; however, the four pits seen in 1953 have been graded level. A small, light-toned depression and an additional pit can now be seen on the dark-toned fill.

A newly excavated area of approximately 3 hectares (7 acres) has been created in the southeastern end of the site, where the nursery was located in 1953. This excavation is approximately 14-17 meters (46-56 feet) deep at its lowest point.* Some of the excavated material from this area is probably being used as cover material in the western section. Access roads lead directly from this area into the western section of the site.

Waste disposal is also evident in this eastern excavation. A small working face with several possible trash trucks and an operating bulldozer are located in the southwest corner. Several other vehicles and two cranes that are scattered around the excavation indicate active extraction.

A new raw material storage yard fronting on Miller Place Road contains piles of earthen-like material.

*All references to depth refer to depth below the unexcavated terrain surrounding the site unless otherwise stated.



LANDFILL JANUARY 24, 1957 APPROX SCALE 1:4,800

LEGEND

I - IMPOUNDMENT
P - PIT
T - TANK
DB - DEBRIS
DM - DARK MATERIAL
DO - DARK OBJECTS
DS - DARK STAINING
LS - LIGHT-TONED STAIN
MM - MOUNDED MATERIAL (MEDIUM-TONED)
MV - MOVING VEHICLE
SV - STATIONARY VEHICLE
SP - SLUDGE PIT

VA - VEHICLE ACCESS POINT
DTF - DARK-TONED FILL
LTF - LIGHT-TONED FILL
MMD - MOUNDED MATERIAL (DARK-TONED)
MML - MOUNDED MATERIAL (LIGHT-TONED)
GWRB - GROUNDWATER RECHARGE BASIN
===== - BERM, EXCAVATION WALL OR STEEP SLOPE
() - DEPRESSION
||||| - REVETMENT
- - - - - ACCESS ROADS
- - - - - HISTORICAL BOUNDARY
- - - - - SURFACE RUNOFF

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PHOTO 4 SYOSSET LANDFILL MAY 4, 1959 APPROX SCALE 1:5,000

LEGEND

I - IMPOUNDMENT
 P - PIT
 T - TANK
 DB - DEBRIS
 DM - DARK MATERIAL
 DO - DARK OBJECTS
 DS - DARK STAINING
 LS - LIGHT-TONED STAIN
 MM - MOUNDED MATERIAL (MEDIUM-TONED)
 MY - MOVING VEHICLE
 SV - STATIONARY VEHICLE
 SP - SLUDGE PIT

VA - VEHICLE ACCESS POINT
 DTF - DARK-TONED FILL
 LTF - LIGHT-TONED FILL
 MMD - MOUNDED MATERIAL (DARK-TONED)
 MML - MOUNDED MATERIAL (LIGHT-TONED)
 GWRB - GROUNDWATER RECHARGE BASIN
 ———— - BERM, EXCAVATION WALL OR STEEP SLOPE
 () - DEPRESSION
 ||||| - REVETMENT
 - - - - - ACCESS ROADS
 - - - - - HISTORICAL BOUNDARY
 - - - - - SURFACE RUNOFF

March 23, 1962 (Photo 5)

The western fill area has expanded outward towards the northeast. The two pits seen in 1959 have been enlarged to form one large liquid and sludge disposal pit. This pit is roughly circular and lies approximately 8-11 meters (26-36 feet) below the unexcavated surface. Material, including probable rubble, has been mounded around its perimeter. Vehicle access (VA) to the pit is from the east. Probable flow direction of waste liquids and sludge is shown by the small arrows at the vehicle access point.

The fill is primarily light-toned (LTF) (probably indicative of the cover material used) with darker-toned fill in the southeast area and around the pit. There are many vehicles in this western portion of the site; the two largest concentrations are shown on the photo overlay.

Southeast of the large sludge pit is an active working face of the landfill. The fill appears to be progressing in a southeasterly direction and is encroaching on a large pile of dark-toned mounded material (MMD) or dark-toned objects (DO). The imagery scale precludes positive identification of these objects or material. This area is filled or covered by 1963. Larger dark-toned objects are also seen in two areas--near the eastern end of the fill and west of the sludge disposal pit.

In the north central portion of the site adjacent to the light-toned fill is a crude empty trench of undetermined function. It is located just north of the pit seen in 1959 and becomes part of the eastern excavation area by 1963.

The incinerator appears operational; however, vehicle parking in this area has been drastically reduced, indicating that it may no longer be used.

Extraction activity has continued in the eastern section of the site. The excavation has expanded eastward and westward around the fill. Again, the outline of the fill shown on the overlay is a "best approximation." A small amount of debris (DB) appears on this fill area.

Vehicles and equipment in the newly excavated areas indicate current extraction activity. In addition, some dark material (MMD) has been dumped in the shallow, northwest portion of the excavation. Dark staining (DS) is visible near the center of the extraction area.

There has been a marked increase in the number of vehicles and equipment stored in the raw material storage yard.



PHOTO 5 SYOSSET LANDFILL MARCH 23, 1962 APPROX SCALE 1:4,800

LEGEND

I - IMPOUNDMENT
 P - PIT
 T - TANK
 DB - DEBRIS
 DM - DARK MATERIAL
 DO - DARK OBJECTS
 DS - DARK STAINING
 LS - LIGHT-TONED STAIN
 MM - MOUNDED MATERIAL (MEDIUM-TONED)
 MV - MOVING VEHICLE
 SV - STATIONARY VEHICLE
 SP - SLUDGE PIT

VA - VEHICLE ACCESS POINT
 DTF - DARK-TONED FILL
 LTF - LIGHT-TONED FILL
 MMD - MOUNDED MATERIAL (DARK-TONED)
 MML - MOUNDED MATERIAL (LIGHT-TONED)
 GWRB - GROUNDWATER RECHARGE BASIN
 ———— - BERM, EXCAVATION WALL OR STEEP SLOPE
 () - DEPRESSION
 ||||| - REVETMENT
 - - - - - ACCESS ROADS
 - - - - - HISTORICAL BOUNDARY
 - - - - - SURFACE RUNOFF

November 20, 1963 (Photo 6)

Considerable fill activity has occurred on the western half of the site. The fill area now encompasses approximately 8 hectares (20 acres) and is raised approximately 1-4 meters (3-13 feet) above the unexcavated terrain.

The liquid/sludge disposal pit is still present; however, it has been reduced considerably in area and now lies only 4-7 meters (13-23 feet) below the fill surface. No standing liquid is evident in the pit, although dark staining (DS) along the southern wall suggests past liquid disposal.

An active debris disposal working face lies northwest of the pit. Both moving and stationary vehicles and equipment (garbage trucks and a dump truck), debris and cover material are present there. Just to the north is an older working face with some debris still exposed (MMD).

A large mound and numerous smaller piles of light- and dark-toned earthen material (MM) (probably cover material) can be seen near the northern edge of the fill. In the northwesternmost corner, adjacent to the large mound, is some very dark mounded material (MMD). Its texture suggests that it may be dried sludge or a pile of small dark objects. This dark material is being covered with mounds of earthen material. There are also three areas of dark staining (DS) in the northwest portion of the fill. Two of these appear to be in the process of being covered with mounded material (MM). A small amount of debris or a few small objects are in the northernmost stained area. Exposed debris (DB) is also evident along the southeastern edge of the fill. A garbage truck is entering the site near this debris.

The eastern extraction area has expanded to the northeast and now occupies approximately 4.5 hectares (11 acres). Active excavation can be seen in the new northeastern excavation. Possible debris piles (DB) or mounded material are located along the fill edge.

The stacks of the incinerator building have been removed. A pile of junked and dismantled equipment can be seen in the parking lot adjacent to the old incinerator.



PHOTO 6 SYOSSET LANDFILL NOVEMBER 20, 1963 APPROX SCALE 1:4,800

LEGEND

I - IMPOUNDMENT
 P - PIT
 T - TANK
 DB - DEBRIS
 DM - DARK MATERIAL
 DO - DARK OBJECTS
 DS - DARK STAINING
 LS - LIGHT-TONED STAIN
 MM - MOUNDED MATERIAL (MEDIUM-TONED)
 MV - MOVING VEHICLE
 SV - STATIONARY VEHICLE
 SP - SLUDGE PIT

VA - VEHICLE ACCESS POINT
 DTF - DARK-TONED FILL
 LTF - LIGHT-TONED FILL
 MMD - MOUNDED MATERIAL (DARK-TONED)
 MML - MOUNDED MATERIAL (LIGHT-TONED)
 GWRB - GROUNDWATER RECHARGE BASIN
 ———— - BERM, EXCAVATION WALL OR STEEP SLOPE
 (DEPRESSION) - DEPRESSION
 ||||| - REVETMENT
 - - - - - ACCESS ROADS
 - - - - - HISTORICAL BOUNDARY
 - - - - - SURFACE RUNOFF

May 5, 1966 (Photo 7)

Extensive landfilling has taken place since 1963. The 14-17 meter (46-56 feet) deep eastern excavation area first seen in 1959 has been completely filled with light-toned fill. Most of this filling occurred after 1963. The only large area that has not been filled to or above the level of the surrounding unexcavated land is the low area east of the incinerator building. This area remains below the grade of the rest of the fill through the last year of analysis (1983). Active landfilling continues on site, as evidenced by the presence of debris (DB) piles, recent dark staining (DS), mounded material (MM) and vehicular activity on site. Active debris disposal can be seen in the north central and northeastern sections of the site. Dump trucks and an operating bulldozer are present at the working face of the northeastern dump site.

The liquid and sludge disposal pit found in previous years is shallow and barely visible in 1966. Some dark staining (DS) is visible in the shallow remains of the pit. Graded fill is visible around the pit and over a large portion of the center of the site. Partially covered debris (DB) is visible along the western edge of the fill. Mounded material (MM) and light-toned material (MML) are visible along the southern edge of the site. Dark staining (DS) is visible in the western portion of the site and on several areas of the graded fill area covering the center of the site.

A newly excavated, probably unlined pit filled with liquid and sludge is located west of the incinerator building. Dark-toned liquid can be seen at either end of the pit, while a lighter-toned residue appears in the center of the pit. A possible tank truck is parked north of the pit. The junked equipment seen in 1963 has been removed. A newly excavated empty pit is located at the southeast corner of the incinerator building. Another smaller empty pit is located at the northeast corner of the incinerator building.

Light- and dark-toned mounded material (MML and MMD), possible sludge and some dark staining (DS) can be seen on the light-toned fill that covers the eastern excavated area.



PHOTO 7 SYOSSET LANDFILL MAY 5, 1966 APPROX SCALE 1:5,000

LEGEND

I - IMPOUNDMENT
 P - PIT
 T - TANK
 DB - DEBRIS
 DM - DARK MATERIAL
 DO - DARK OBJECTS
 DS - DARK STAINING
 LS - LIGHT-TONED STAIN
 MM - MOUNDED MATERIAL (MEDIUM-TONED)
 MV - MOVING VEHICLE
 SV - STATIONARY VEHICLE
 SP - SLUDGE PIT

VA - VEHICLE ACCESS POINT
 DTF - DARK-TONED FILL
 LTF - LIGHT-TONED FILL
 MMD - MOUNDED MATERIAL (DARK-TONED)
 MML - MOUNDED MATERIAL (LIGHT-TONED)
 GWRB - GROUNDWATER RECHARGE BASIN
 ———— - BERM, EXCAVATION WALL OR STEEP SLOPE
 () - DEPRESSION
 ||||| - REVETMENT
 - - - - - ACCESS ROADS
 - - - - - HISTORICAL BOUNDARY
 - - - - - SURFACE RUNOFF

April 11, 1969 (Photo 8)

Partial revegetation has occurred on site by 1969. The western fill portion is characterized by numerous earthen mounds and shallow depressions. A new pit with dark-toned liquid has been constructed near the site of the old sludge disposal pit seen in previous years. Large mounds of dark and light material (MMD and MML) are located along the southern edge of the western landfill. Light-toned material (possibly cement) or sludge appears to have been poured into the center of this fill area. This material persists until 1978. Numerous small mounds are scattered around a small area in the north central portion of the site; these remain for several years.

A three-sectioned impoundment (I) has been constructed west of the old incinerator building. Two sections of this impoundment appear to contain liquid in 1969.

A cylindrical tank (T) has been erected in the empty pit that was located just south of the old incinerator building in 1966. A pipe leads westward from this tank and possibly goes underground toward the three-sectioned impoundment. The pit east of the old incinerator has been partially filled from the south and contains very dark-toned liquid or sludge. Dark staining (DS), resulting from a spillage or overflow, can be seen north of the pit. A berm has been constructed next to the spill to block further overflow. Mounded light-toned material (MML) can be seen east of the liquid-filled pit. Two pits with possible dumping activity can be seen near the northeast corner of the incinerator building.

The raw material storage is associated with a possible state road maintenance facility located at the eastern edge of the landfill. Medium-toned fill is being graded over the eastern portion of the landfill just west of the raw material storage area. Access to this graded fill is from the east, through the raw material storage area.





8 SYOSSET LANDFILL APRIL 11, 1969 APPROX SCALE 1:5,100

LEGEND

I - IMPOUNDMENT
 P - PIT
 T - TANK
 DB - DEBRIS
 DM - DARK MATERIAL
 DO - DARK OBJECTS
 DS - DARK STAINING
 LS - LIGHT-TONED STAIN
 MM - MOUNDED MATERIAL (MEDIUM-TONED)
 MV - MOVING VEHICLE
 SV - STATIONARY VEHICLE
 SP - SLUDGE PIT

VA - VEHICLE ACCESS POINT
 DTF - DARK-TONED FILL
 LTF - LIGHT-TONED FILL
 MMD - MOUNDED MATERIAL (DARK-TONED)
 MML - MOUNDED MATERIAL (LIGHT-TONED)
 GWRB - GROUNDWATER RECHARGE BASIN
 ———— - BERM, EXCAVATION WALL OR STEEP SLOPE
 () - DEPRESSION
 ||||| - RETEMENT
 - - - - - ACCESS ROADS
 - - - - - HISTORICAL BOUNDARY
 - - - - - SURFACE RUNOFF

April 18, 1972 (Photo 9)

The western portion of the landfill is similar in condition to that seen in 1969. Partial revegetation is visible, and the numerous earthen mounds and shallow depression are still visible. The shallow pit is also still visible, but it now contains light-toned material. Two areas of dark staining (DS) are visible to the east. The light-toned sludge or cement is still visible.

The impoundment (I) along the south edge of the site contains four chambers and appears to hold both light and dark liquid. Two ramps lead into this impoundment. The tank (T) near the old incinerator building is still present. The liquid-filled pit seen east of the old incinerator has been filled by 1972. The historical boundary (1966) is outlined on the photo overlay. Areas of dark staining (DS) can be seen east and south of the old pit. Some of this staining appears to have flowed into the access road leading on site.

Medium-toned fill with some dark staining (DS) has recently been spread over the eastern portion of the landfill. Dumped mounded material (MM) and standing liquid (SL) are located adjacent to and partially surrounded by this fill. The raw material storage area has expanded westward onto this fill area.

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PHOTO 9 SYOSSET LANDFILL APRIL 18, 1972 APPROX SCALE 1:5,100

LEGEND

IMPOUNDMENT
PIT
TANK
DEBRIS
DARK MATERIAL
DARK OBJECTS
DARK STAINING
LIGHT-TONED STAIN
MOUNDED MATERIAL (MEDIUM-TONED)
DYING VEHICLE
STATIONARY VEHICLE
SLUDGE PIT

VA - VEHICLE ACCESS POINT
DTF - DARK-TONED FILL
LTF - LIGHT-TONED FILL
MMD - MOUNDED MATERIAL (DARK-TONED)
MML - MOUNDED MATERIAL (LIGHT-TONED)
GWRB - GROUNDWATER RECHARGE BASIN
===== - BERM, EXCAVATION WALL OR STEEP SLOPE
⊖ - DEPRESSION
||||| - REVETMENT
- - - - - ACCESS ROADS
- - - - - HISTORICAL BOUNDARY
- - - - - SURFACE RUNOFF

March 14, 1974 (Photo 10)

New disturbance has occurred in the western portion of the landfill. Light-toned material (MML) has been brought in and spread on site. A wall of this light-toned material has been created along the western edge of the landfill. The revegetated area seen in 1972 is slightly larger. The light-toned material first seen in 1969 is still present and unvegetated. The light-toned material (MML) seen west of the four-sectioned impoundment in 1972 has been removed and possibly spread on the western portion of the landfill. The pit near the center of the western fill has been expanded and now contains dark liquid. An earthen berm surrounds this pit on three sides. By 1976 this pit is filled again.

Dark staining (DS) can be seen in two sections of the four-sectioned impoundment and among the light-toned mounded material (MML) at the upper northwest corner of the landfill site.

Light-toned fill (LTF) continues to be spread in the eastern portion of the landfill. A small (0.04 hectare--0.1 acre) impoundment (I) with liquid has been constructed east of the old incinerator building. Two areas of dark staining (DS) can be seen east and north of this impoundment. The raw material storage yard and the maintenance facility continue to expand westward onto land that once comprised the eastern excavation.



SYOSSET LANDFILL MARCH 14, 1974 APPROX SCALE 1:5,000

LEGEND

I - IMPOUNDMENT
P - PIT
T - TANK
DB - DEBRIS
DM - DARK MATERIAL
DO - DARK OBJECTS
DS - DARK STAINING
LS - LIGHT-TONED STAIN
MM - MOUNDED MATERIAL (MEDIUM-TONED)
MV - MOVING VEHICLE
SV - STATIONARY VEHICLE
SP - SLUDGE PIT

VA - VEHICLE ACCESS POINT
DTF - DARK-TONED FILL
LTF - LIGHT-TONED FILL
MMD - MOUNDED MATERIAL (DARK-TONED)
MML - MOUNDED MATERIAL (LIGHT-TONED)
GWRB - GROUNDWATER RECHARGE BASIN
===== - BERM, EXCAVATION WALL OR STEEP SLOPE
() - DEPRESSION
||||| - REVETMENT
--- - ACCESS ROADS
----- - HISTORICAL BOUNDARY
- - - - - SURFACE RUNOFF

April 17, 1976 (Photo 11)

Continued disturbance is taking place in the western portion of the landfill in 1976. The mounded light-toned material (MML) seen in 1974 has been removed or graded over the fill by 1976. The liquid-filled pit found south of the vegetated area in 1974 has been filled with light-toned material. Some dark staining (DS) is still visible here. Vegetation is enclosing this old disposal pit. Another shallow, dry pit can be seen west of the 1974 pit. Light staining (LS) is evident in the bottom of the pit. The possible light-toned sludge in the center of the revegetated area is still visible. Twelve piles of mounded dark-toned material (MMD) can be seen near the south central portion of the landfill. Dark staining (DS), which may be liquid disposal, is located along the access road just north of these piles.

The four-sectioned impoundment (I) is dry in 1976. Large scale dumping activity in the east central portion of the landfill is evidenced by the numerous large mounds of earthen material (MM) and debris (DB) present there. The impoundment seen in 1974 is still present. Drainage flows from the raw material storage yard into the impoundment as indicated. Two tanks (T) and dark staining (DS) (possible spillage) can be seen in the raw material storage yard. Another large tank is located southeast of the incinerator. Some dark staining is visible on an access road north of this tank.



PHOTO II SYOSSET LANDFILL APRIL 17, 1976 APPROX SCALE 1:4,800

LEGEND

I - IMPOUNDMENT
 P - PIT
 T - TANK
 DB - DEBRIS
 DM - DARK MATERIAL
 DO - DARK OBJECTS
 DS - DARK STAINING
 LS - LIGHT-TONED STAIN
 MM - MOUNDED MATERIAL (MEDIUM-TONED)
 MV - MOVING VEHICLE
 SV - STATIONARY VEHICLE
 SP - SLUDGE PIT

VA - VEHICLE ACCESS POINT
 DTF - DARK-TONED FILL
 LTF - LIGHT-TONED FILL
 MMD - MOUNDED MATERIAL (DARK-TONED)
 MML - MOUNDED MATERIAL (LIGHT-TONED)
 GWRB - GROUNDWATER RECHARGE BASIN
 ===== - BERM, EXCAVATION WALL OR STEEP SLOPE
 (DEPRESSION) - DEPRESSION
 ||||| - REVETMENT
 --- - ACCESS ROADS
 - - - - - HISTORICAL BOUNDARY
 - - - - - SURFACE RUNOFF

May 5, 1978 (Photo 12)

The recent (1974 and 1976) disturbance of the old fill area with its light-toned fill (LTF) and exposed earth is still visible in 1978. The dry pit first seen in 1976 is barely visible. Additional dark-toned mounded material (MMD) has been deposited at the southern edge of the landfill. Some dark staining (DS) can be seen between the mounds. An area of light-toned fill (LTF) has been spread over a portion of the dark stained area seen in 1976; standing liquid (SL) can be seen adjacent to the fill. The possible light-toned sludge is still visible near the center of the site.

The four-sectioned impoundment (I) is dry in 1978. Dark staining (DS) can be seen in the northeast quadrant, and a white residue remains in the other three sections. The dumped earth and debris at the east end of the landfill remain in 1978. Additional piles of raw material, along with two tanks, are being stored in the raw material storage yard. The impoundment (I) first seen in 1974 is being filled with mounded light-toned material (MML) from the east; however, some liquid remains.



PHOTO 12 SYOSSET LANDFILL MAY 5, 1978 APPROX SCALE 1:4,800

LEGEND

I - IMPOUNDMENT
P - PIT
T - TANK
DB - DEBRIS
DM - DARK MATERIAL
DO - DARK OBJECTS
DS - DARK STAINING
LS - LIGHT-TONED STAIN
MM - MOUNDED MATERIAL (MEDIUM-TONED)
MV - MOVING VEHICLE
SV - STATIONARY VEHICLE
SP - SLUDGE PIT

VA - VEHICLE ACCESS POINT
DTF - DARK-TONED FILL
LTF - LIGHT-TONED FILL
MMD - MOUNDED MATERIAL (DARK-TONED)
MML - MOUNDED MATERIAL (LIGHT-TONED)
GWRB - GROUNDWATER RECHARGE BASIN
===== - BERM, EXCAVATION WALL OR STEEP SLOPE
() - DEPRESSION
||||| - REVETMENT
- - - - - ACCESS ROADS
- - - - - HISTORICAL BOUNDARY
- - - - - SURFACE RUNOFF

March 6, 1980 (Photo 13)

Recent landfilling and grading activity has occurred on approximately 2.5 hectares (6 acres) of the old fill area. Several piles of mounded light-toned and dark-toned material (MML and MMD) are present in the recently graded area. The dark material has shallow depressions on top of the mounds. Other mounds of material (MM) and dark standing liquid can be seen to the east. The sectioned impoundment (I) located along the southern edge of the site is dry in 1980. Debris (DB) can be seen east of the old incinerator building.

Equipment and raw material storage are found in the east portion of the landfill. Possible construction material and related equipment are also stored in this section of the landfill. A drainage ditch leads from this area of construction material to the low area northeast of the incinerator. The impoundment (I) first seen in 1974 has been completely filled by 1980.



PHOTO 13 SYOSSET LANDFILL MARCH 6, 1980 APPROX SCALE 1:5,000

LEGEND

I - IMPOUNDMENT
 P - PIT
 T - TANK
 DB - DEBRIS
 DM - DARK MATERIAL
 DO - DARK OBJECTS
 DS - DARK STAINING
 LS - LIGHT-TONED STAIN
 MM - MOUNDED MATERIAL (MEDIUM-TONED)
 MV - MOVING VEHICLE
 SV - STATIONARY VEHICLE
 SP - SLUDGE PIT

VA - VEHICLE ACCESS POINT
 DTF - DARK-TONED FILL
 LTF - LIGHT-TONED FILL
 MMD - MOUNDED MATERIAL (DARK-TONED)
 MML - MOUNDED MATERIAL (LIGHT-TONED)
 GWRB - GROUNDWATER RECHARGE BASIN
 ===== BERM, EXCAVATION WALL OR STEEP SLOPE
 (DEPRESSION)
 ||||| REVELMENT
 - - - - - ACCESS ROADS
 - - - - - HISTORICAL BOUNDARY
 - - - - - SURFACE RUNOFF

February 1, 1983 (Photos 14-17)

Four prints of the color Enviro-pod mission were necessary to cover the site. Photos 14 and 15 show the large road maintenance facility and the raw material storage yard which expanded its grounds to cover the eastern portion of the landfill.

Logging debris (DB) can be seen at the southeastern edge of the landfill (Photo 15). Debris is spilling out the back of a trailer along the access road that leads from the raw material storage area onto the western portion of the landfill. The outline of the pit seen in 1966 is annotated to the south. Two mounds of greyish material (MM) are located adjacent to the filled 1966 pit. Also pictured on Photo 15 are the old incinerator and the tank (T) located next to it. Several yellow trucks and passenger cars are parked in the parking area next to the incinerator.

Several large rusted tanks are located next to the northern wall of the landfill site. Rust-colored liquid (probable leachate) can be seen southwest of these tanks.

Photo 16 shows the eastern portion of the old western fill area. The four-sectioned impoundment (I) first seen in 1969 is still visible. Dark staining (DS) is evident in the northeast section; white residue is visible in the other sections. Debris (DB) has been dumped down the side of the impoundment into the two easternmost sections. Staining can be seen along the access road that leads from the incinerator onto this portion of the landfill. Lines of drums can be seen on a light-toned area adjacent to the access road which leads to a pile of mounded material (MM) and debris (DB) (including many uniformly shaped objects). An area of standing liquid (SL) abuts this mounded material. Several areas of light-toned fill (LTF) have been spread north of this mounded material. Additional mounded material (MM) and very dark standing liquid (SL) (possible liquid waste) can be seen south of this mound.

A rectangular revetted area is also present in this area. The revetments form a rectangular loop that is accessed from the west by a revetted road. Two breaks in the revetment can be seen (annotated by arrows). An offshoot or section of the revetment leads directly to the mounded material and dark standing liquid mentioned above. The revetted entrance to this loop leads to the access road annotated on Photo 17 and curves back to the east to the raw material storage area seen in Photo 15. Brown mounded material (MM) can be seen near the entrance of this revetted loop (see Photo 17). Dark staining (DS), light-toned fill (LTF), rubble, and debris (DB) can be seen to the north.

One of the numerous groundwater recharge basins (GWRB) in the area is shown on Photo 17.

LEGEND

I - IMPOUNDMENT
P - PIT
T - TANK
DB - DEBRIS
DM - DARK MATERIAL
DO - DARK OBJECTS
DS - DARK STAINING
LS - LIGHT-TONED STAIN
MM - MOUNDED MATERIAL (MEDIUM-TONED)
MV - MOVING VEHICLE
SV - STATIONARY VEHICLE
SP - SLUDGE PIT

VA - VEHICLE ACCESS POINT
DTF - DARK-TONED FILL
LTF - LIGHT-TONED FILL
MMD - MOUNDED MATERIAL (DARK-TONED)
MML - MOUNDED MATERIAL (LIGHT-TONED)
GWRB - GROUNDWATER RECHARGE BASIN
===== - BERM, EXCAVATION WALL OR STEEP SLOPE
⊖ - DEPRESSION
||||||| - REVETMENT
--- - ACCESS ROADS
----- - HISTORICAL BOUNDARY
---<--- - SURFACE RUNOFF



PHOTO 14 SYOSSET LANDFILL FEBRUARY 1, 1983 APPROX SCALE 1:3,200



PHOTO 15 SYOSSET LANDFILL FEBRUARY 1, 1983 APPROX SCALE 1:3,200



PHOTO 16 SYOSSET LANDFILL FEBRUARY 1, 1983 APPROX SCALE 1:3,200

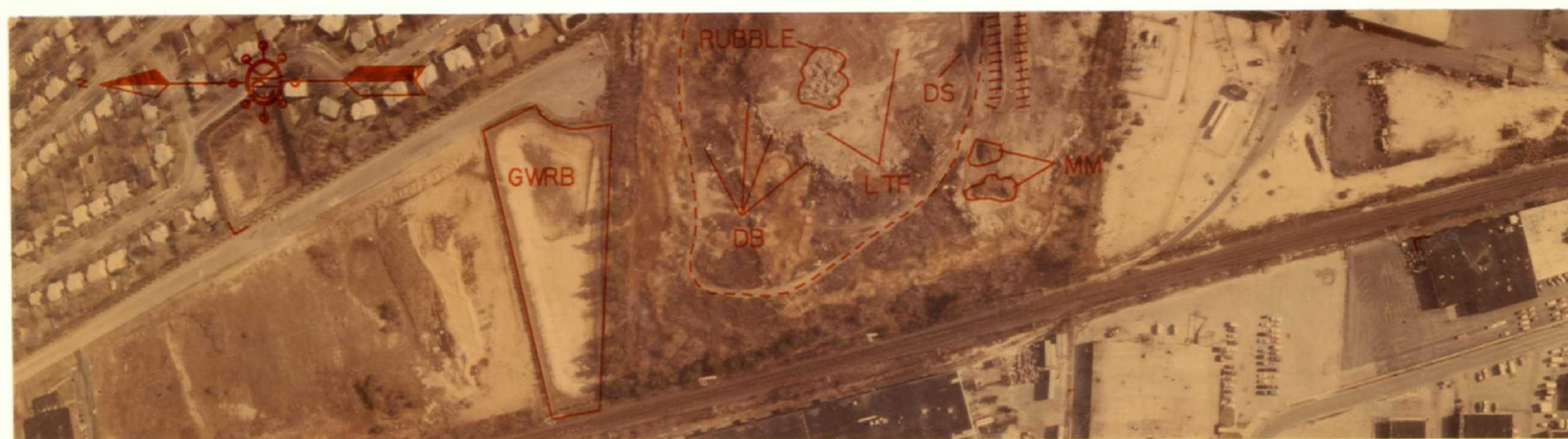


PHOTO 17 SYOSSET LANDFILL FEBRUARY 1, 1983 APPROX SCALE 1:3,200

SUMMARY OF ACTIVITY

During the period of analysis the site progressively changes from a deep excavation to a slightly raised fill area. The excavation first appears in the western section. Later (1957), an additional excavation is opened in the eastern section. Both of these areas are filled with large quantities of liquids, sludges, municipal debris and earthen fill material. The fill areas eventually join together to form the slightly raised fill area seen in the most recent imagery. Access to the site and the presence of waste materials are still evident in early 1983.

The following is a year-by-year summary of activity on site.

- 1938 - (Photo 1) This is the first year analyzed. A building with a possible smokestack, a pit with staining, and disturbed ground appear on site. This building is in the same location as the incinerator that appears in the following years.
- 1953 - (Photo 2) The deepest excavation seen during analysis appears in the western portion of the site. Dark-toned fill (DTF), which may be sludge, lies near the bottom of the excavation. An incinerator appears near the center of the site. Areas of dark-toned fill with possible liquid disposal pits are seen north of the incinerator. Debris piles are also present on site.
- 1957 - (Photo 3) The excavation in the west continues to be used for extraction and disposal. Possible liquid and sludge disposal is visible at several areas in the excavation. A large disposal pit is visible near the center of the excavation. Filling has decreased the depth of the excavation. An additional active excavation area is present at the east end of the site. Debris disposal can also be seen in this excavation. Probable refuse trucks are parked adjacent to the incinerator.
- 1959 - (Photo 4) The excavation area in the west is being filled with light-toned fill (LTF). A liquid and sludge disposal pit, approximately 12-15 meters (40-50 feet) deep, is present in this area. Both liquid and sludge are evident in the pit area. Dark staining (DS) and dark material (DM) are visible in the excavated area at the east end of the site.
- 1962 - (Photo 5) The liquid and sludge disposal pit is roughly circular in shape and has been reduced to 8-11 meters (26-36 feet) deep. Additional filling activity (LTF) surrounds the pit. Several piles of dark objects (DO) or dark mounded material (MMD) are found east of the pit. (These are covered by 1963.) The extraction area at the east end comprises 4 hectares (10 acres) in area, and two areas of possible sludge disposal are present. The incinerator appears inactive.
- 1963 - (Photo 6) Extensive landfilling has occurred in the west. The sludge/liquid disposal pit is smaller in area and has been reduced to approximately 4-7 meters (13-23 feet) deep. Active disposal of debris and refuse is visible on top of the western fill area north of the pit. Debris piles are visible in the eastern extraction area. The incinerator stacks have been removed.

- 1966 - (Photo 7) Continued extensive filling activity has filled both the eastern and western excavated areas to or above the level of the unexcavated area around the site. The former liquid/sludge disposal pit is shallow and barely visible. Active debris dumping continues on site. A liquid disposal pit an empty, both newly excavated, are located near the incinerator. Dark liquid is present in the liquid disposal pit.
- 1969 - (Photo 8) The liquid disposal pit next to the incinerator appears to have overflowed in 1969. Dark staining (DS) can be seen where the spillage occurred. A berm was constructed to block further spillage. A tank (T) has been erected in an empty pit next to the incinerator. A three-sectioned impoundment has been constructed west of this tank. A shallow pit with dark-toned liquid occupies the position of the liquid/sludge disposal pit seen in previous years. Light-toned liquid or sludge has been spilled on the central portion of the site. This spillage remains unchanged for at least nine years (until 1978). Vegetation appears to be encroaching on parts of the landfill.
- 1972 - (Photo 9) The liquid disposal pit first seen in 1966 has been filled by 1972. Dark staining (DS) can be seen where the pit was located. The sectional impoundment west of the incinerator contains four sections with both light-and dark-toned liquid and two access ramps visible. The raw material storage facility is expanding westward onto the landfill.
- 1974 - (Photo 10) New ground disturbance and fill activity have taken place in the western section of the site. The pit near the historical sludge disposal pit has again become more pronounced; it now contains dark liquid. Light-toned fill (LTF) is being spread north of the incinerator. Two sections of the four-sectioned impoundment show dark staining (DS). A small (0.04 hectare--0.1 acre) impoundment has been constructed east of the incinerator. The equipment and raw material storage facility continues to expand westward onto the landfill site.
- 1976 - (Photo 11) Recent disturbance is occurring in the west where mounded light-toned material (MML) was removed or graded over. The liquid-filled pit seen in 1974 has again been filled. Dark staining (DS) is visible on the access road that leads west on the site. Large-scale dumping has occurred in the eastern section of the site. A large tank trailer can be seen near the site of the 1966 disposal pit.
- 1978 - (Photo 12) Mounded dark-toned material (MMD) has been deposited in the southwestern section of the site. The eastern section of the fill is similar to its condition found in 1976. The impoundment (I) in the eastern section is smaller due to filling. The tank trailer seen in 1976 is gone.
- 1980 - (Photo 13) Landfilling and grading activity have taken place in the southwest section of the landfill site. Some of the dark-toned mounded material (MMD) seen in 1976 has been removed. The old fill area is revegetating. A new equipment storage area and additional raw material storage is located on the northeast section of the landfill.
- 1983 - (Photos 14-17) The raw material and equipment storage area occupies the eastern portion of the site. Drums, mounded material and debris, rubble and standing liquid are present on several areas in the eastern section of the site.

REFERENCES

Photography

<u>DATE</u>	<u>AGENCY</u>	<u>CODE/FRAME</u>	<u>SCALE</u>	<u>EPA/EPIC FRAME #</u>
August 3, 1938	NARS ¹	BTQ/4-60,61	1:20,000	NA
December 2, 1953	USGS ²	VBV/1-128,129	1:20,000	4070-054,055
January 24, 1957	LKB ³	4030/5-179,180	1:12,000	4235,4236
May 4, 1959	LKB	9046/1-173,174	1:24,000	4233,4234
March 23, 1962	LKB	2023/9-461,462	1:17,200	4231,4232
November 20, 1963	LKB	3091/3-015,016	1:12,000	4229,4230
May 5, 1966	LKB	6526/24-608,609	1:17,200	4227,4228
April 11, 1969	LKB	1738/10-807,808	1:17,200	4225,4226
April 18, 1972	LKB	2376/10-68,69	1:17,200	4223,4224
March 14, 1974	USGS	VDMB/1-28,29	1:24,000	4070-47,48
April 17, 1976	LKB	3169/16-796,797,798	1:9,600	4218,4219,4220
May 5, 1978	LKB	3347/22-553,554	1:17,200	4216,4217
March 6, 1980	TSRPC ⁴	R9624/4514,4515	1:24,000	4043-4082,4081
February 1, 1983	EPIC ⁵	83-03/161-169	Variable	161-169

Maps

<u>AGENCY</u>	<u>TYPE</u>	<u>NAME</u>	<u>DATE</u>
USGS	7.5-minute topographic	Hicksville, New York	1967

- ¹ NARS National Archives and Record Service
² USGS United States Geological Survey
³ LKB Lockwood Kessler & Bartlett
⁴ TSRPC Tri-State Regional Planning Commission
⁵ EPIC Environmental Photographic Interpretation Center